



Delivering Health in Affordable Multifamily

Key to Solving the Housing Crisis

Since 1972, Steven Winter Associates, Inc. has been providing research, consulting, and advisory services to improve the built environment for private and public sector clients.

Our services include:

- Energy Conservation and Management
 - Decarbonization
 - Sustainability Consulting
 - Green Building Certification
 - Accessibility Consulting
-

Our teams are based across four office locations:
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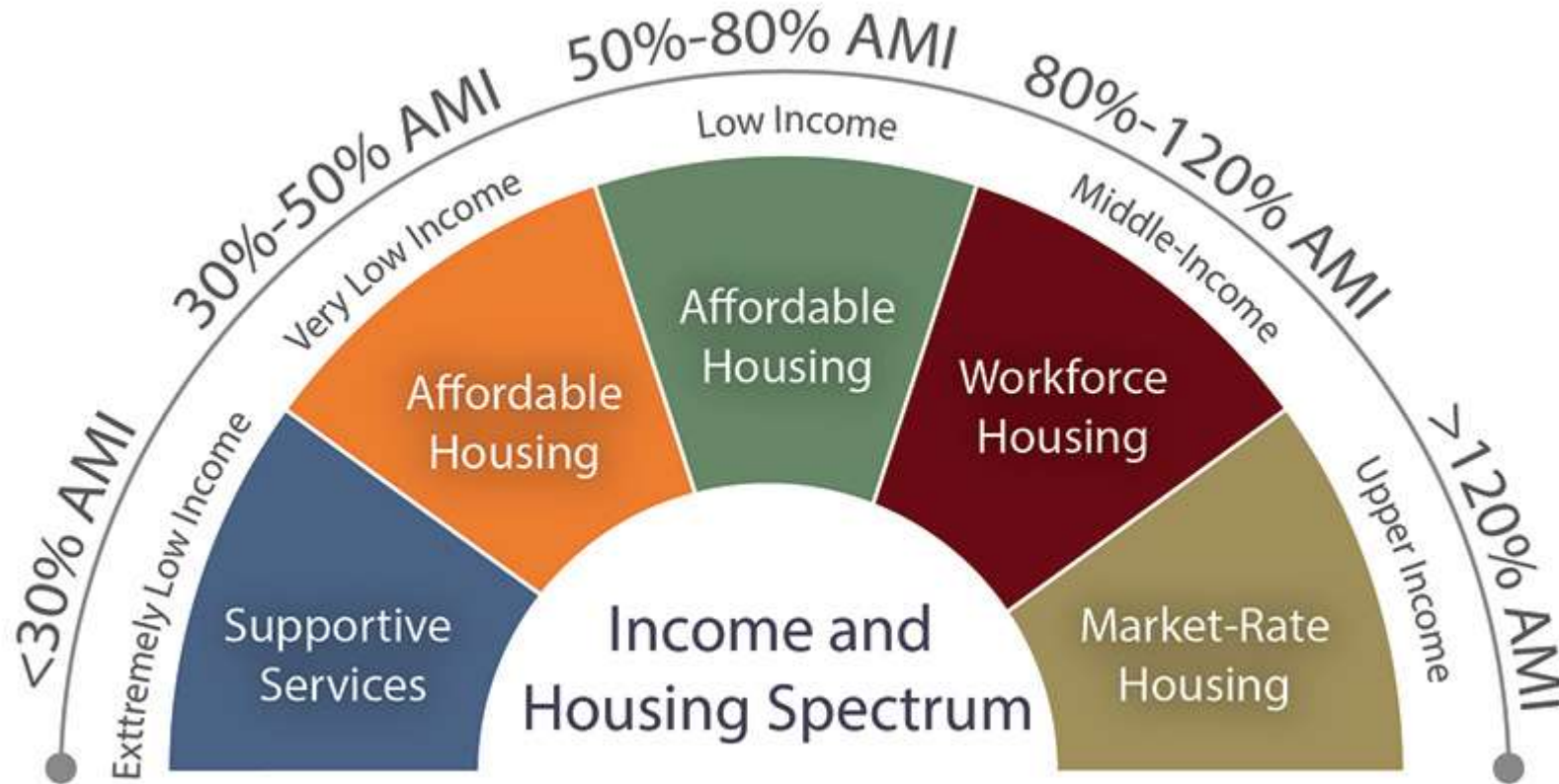


- Who Do We Build For
- What Do We Build
- Where Do We Build
- How Do We Build



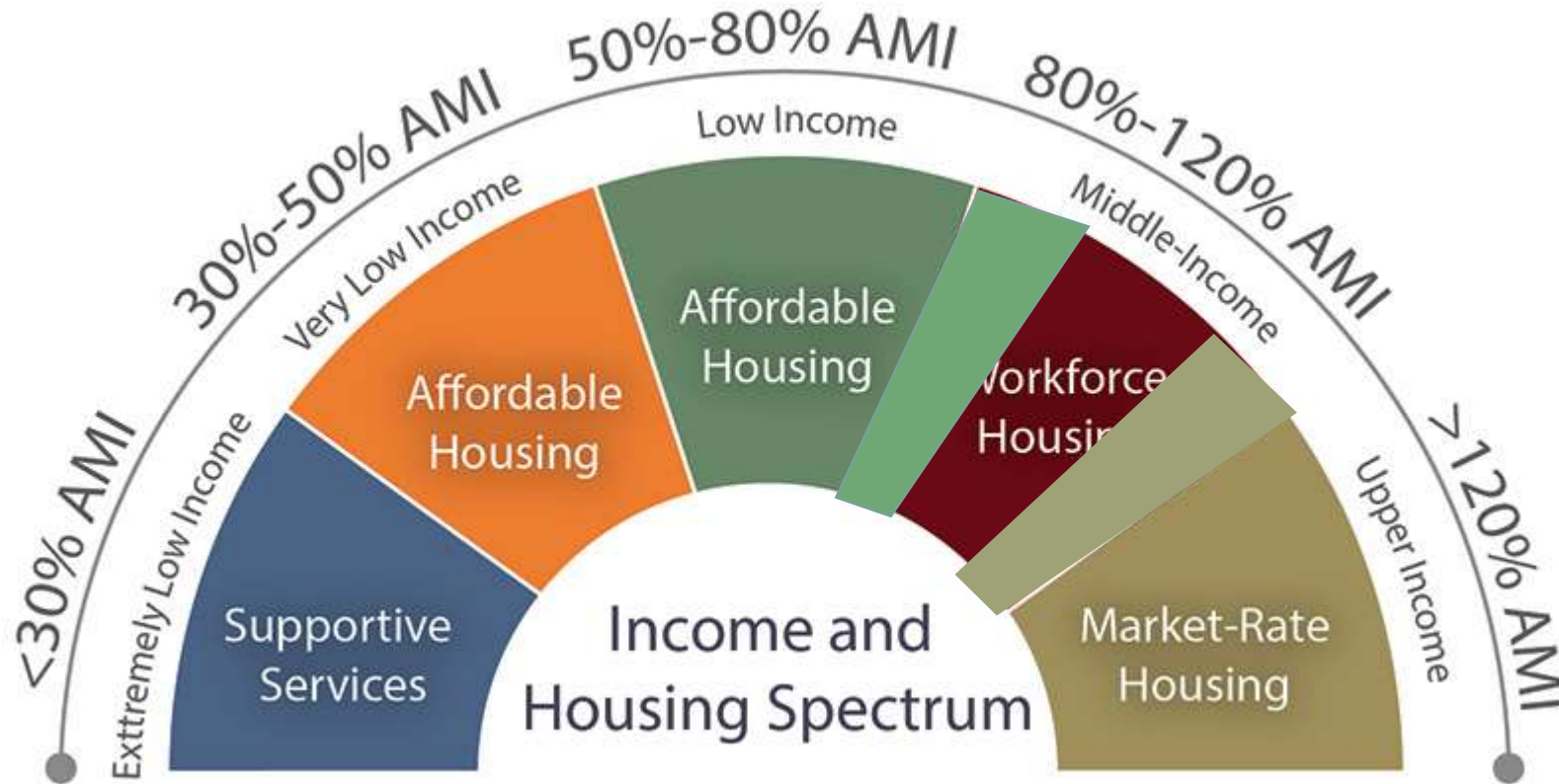
- Who Do We Build For

Affordable, Work-force, and Middle Housing



Graphic: Camoin Associates

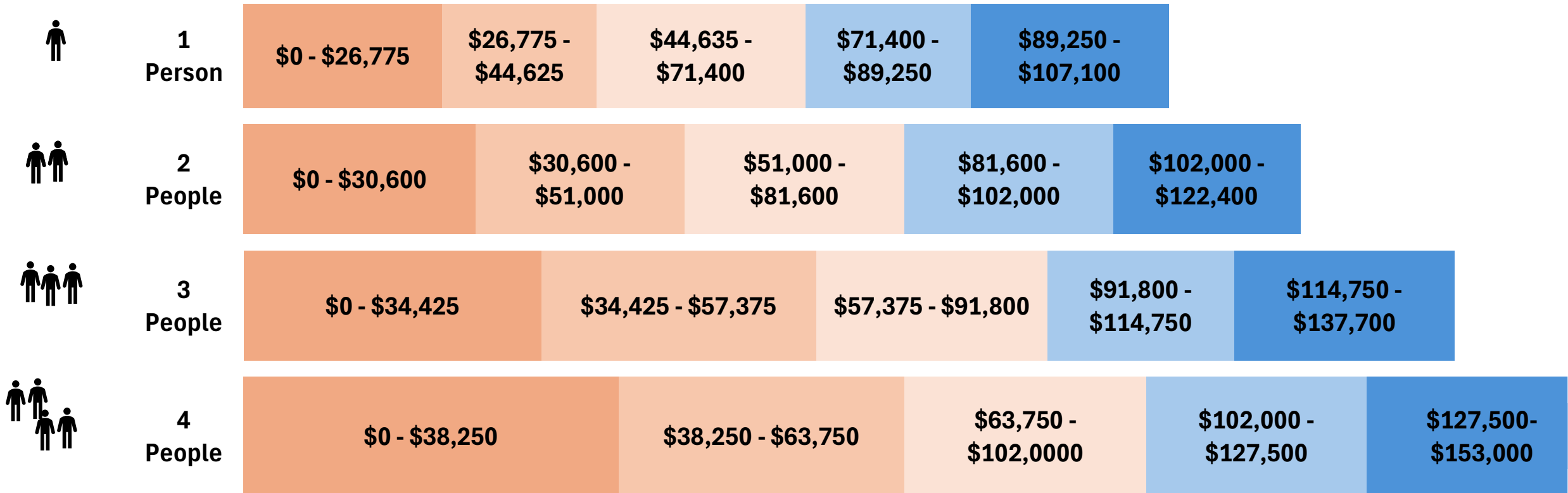
Affordable, Work-force, and Middle Housing



Graphic: Camoin Associates

AMI ~ Greater Portland

Extremely Low Income (0 - 30% of AMI)
Very Low Income (30% - 50% of AMI)
Low Income (50% - 80% of AMI)
Work Force (80% - 100% of AMI)
Market Rate (+120% of AMI)





- Who Do We Build For
- What Do We Build

What Do We Build? Renovate/Remodel/Convert?



Office to Residential



- HUD • Community Development Block Grant Program
• Pathways to Removing Obstacles to Housing

- BOSTON • Downtown Residential
Conversion Incentive Program

- DC • Tax Abatements through DC's
Housing in Downtown program



Office to Residential



Middle Housing

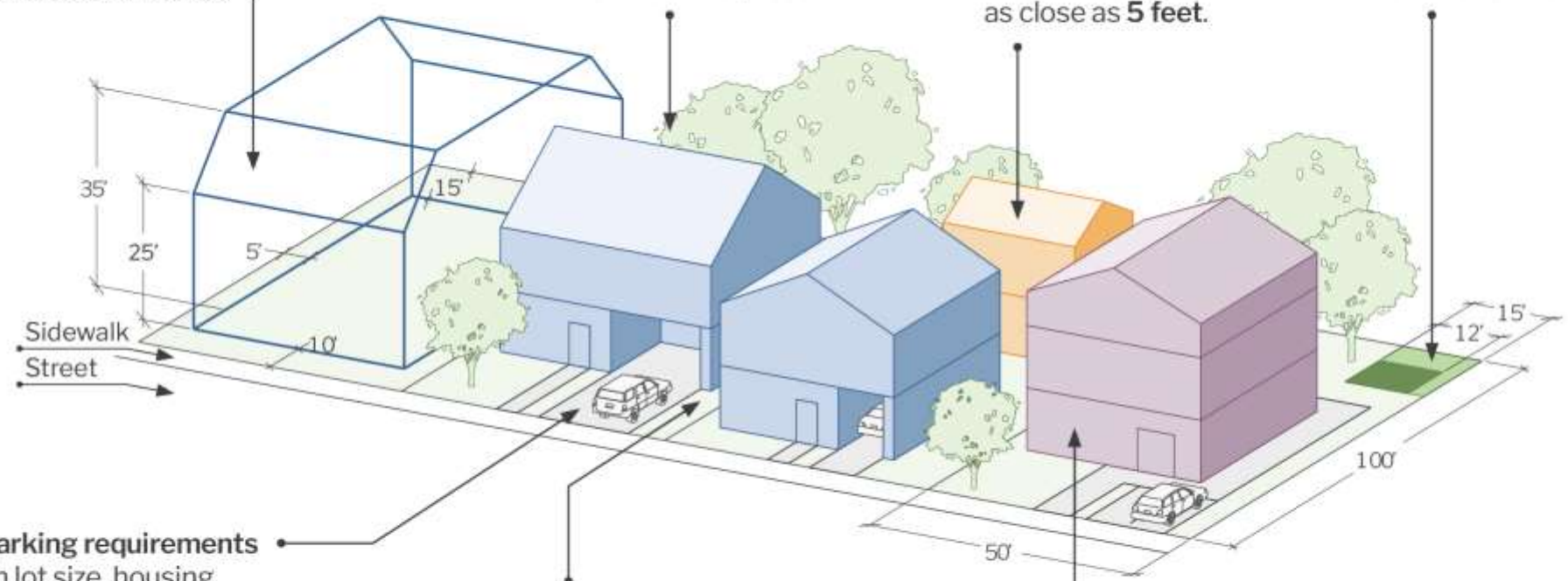


New rules limit the total amount of **building floor area** and **bulk** at the front and/or rear of the lot.

Tree plantings required when the lot has sufficient space.

A **2-story ADU** can be up to **15 feet** from rear property line. A **1-story ADU** can be as close as **5 feet**.

An **outdoor open area** is required when units are added to the site.



Off-street parking requirements depend upon lot size, housing type and neighborhood context. Some scenarios do not require parking. Others may require up to one space per unit.

Side setbacks are 5 feet in most situations, but 3 feet if the two lots are part of the same land division.

On most lots, **duplexes, triplexes and quadplexes** are allowed.

BLUE Home = Single-detached
ORANGE Home = ADU
PURPLE Home = Triplex or Quadplex

Build Home Ownership Opportunities



Peace Village Co-op

Eugene, OR | 2024

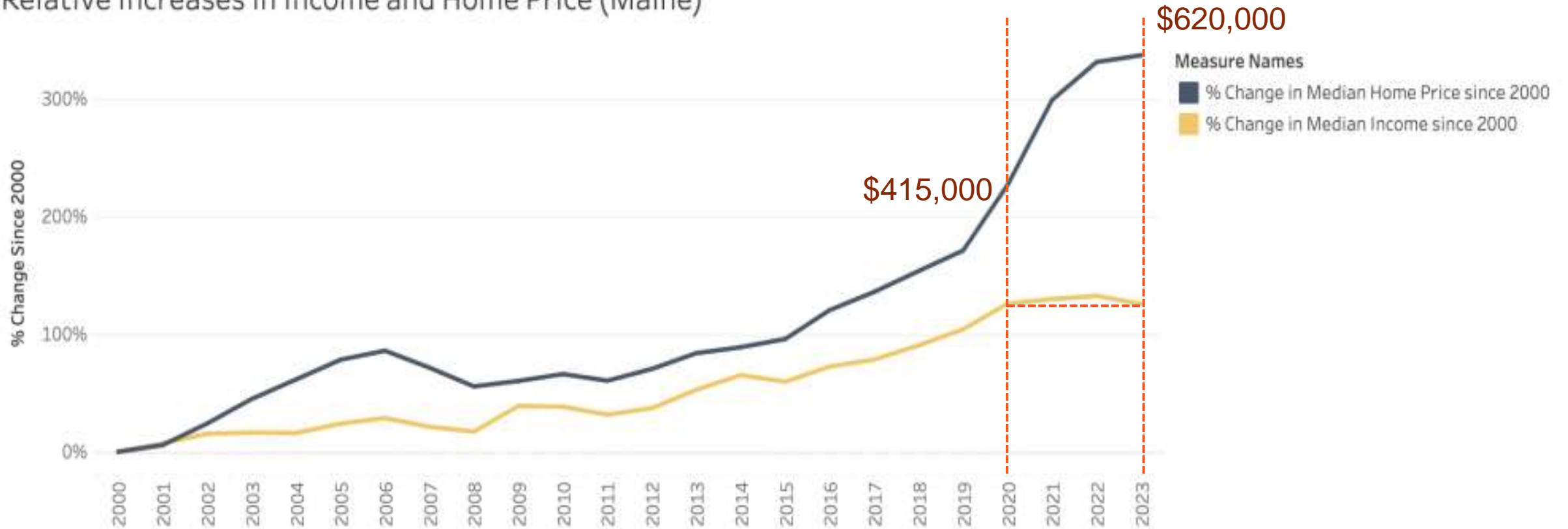
70 Permanently Affordable Owner-Occupied Units
< 60% AMI



Build Home Ownership Opportunities



Relative Increases in Income and Home Price (Maine)



An architectural rendering of a modern residential courtyard. The scene features multi-story buildings with light-colored horizontal siding and dark accents. A paved walkway leads through the courtyard, flanked by lush greenery and purple flowers. In the foreground, a woman wearing a wide-brimmed hat and a light-colored jacket stands on the path, looking towards another woman who is sitting cross-legged on the grass. The sitting woman is holding a laptop and looking at the standing woman. The sky is bright blue with a few white clouds. The overall atmosphere is bright and inviting, suggesting a high-quality, community-oriented living environment.

1. We need stepping stones to homeownership

Smaller, more inherently affordable homeownership options

2. We need anti-displacement protections

Permanently affordable homes in every neighborhood

Build Home Ownership Opportunities



- Address Zoning Restrictions



Build Home Ownership Opportunities



- Address Zoning Restrictions
- Work with Local Lenders

Build Home Ownership Opportunities



- Address Zoning Restrictions
- Work with Local Lenders
- Grow Home Strategy



At Initial Sale

- 1 Bed/1Bath @ 408 SF



Future Opportunity

- 2-3 Bed/2Bath @ 816 SF

Build Home Ownership Opportunities



- Address Zoning Restrictions
- Work with Local Lender
- Grow Home Strategy

	Grow Home 408 sf	Two-Bedroom Home (816 sf) [Grow Home with finished 2 nd floor]
Estimated Sales Price with subsidy (without subsidy)	\$115,000 (\$210,000)	\$222,000 (\$317,000)
Mortgage Payment incl. utilities	\$970/month (60% AMI)	\$1750/month (97% AMI)

- Lower-income Buyers can qualify for the mortgage
- \$9,400 annual savings can be put toward construction, free of mortgage interest

Build Home Ownership Opportunities

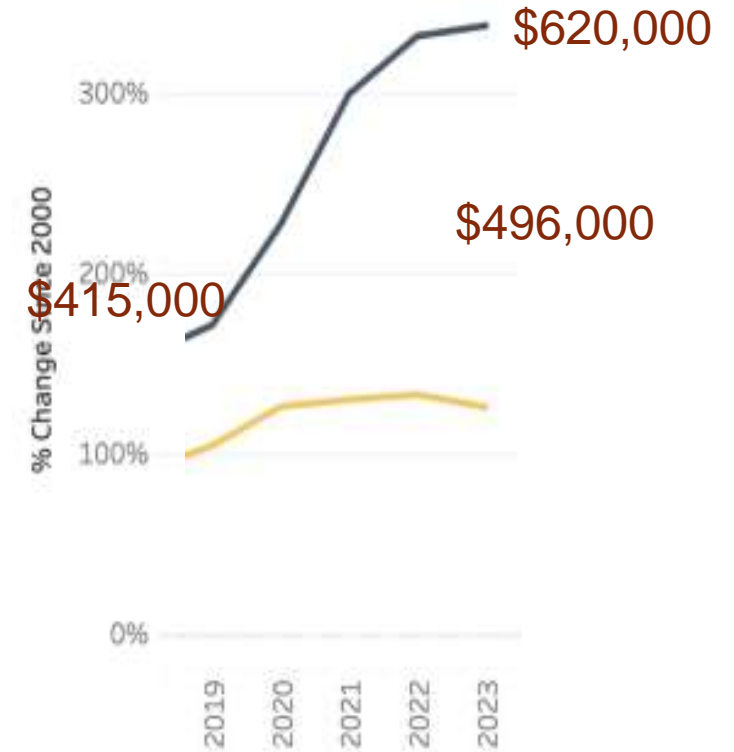


- Address Zoning Restrictions
- Work with Local Lenders
- Grow the Home as a Strategy
- Deed Restrict Cap Resale Values

Build Home Ownership Opportunities



- Address Zoning Restrictions
- Work with Local Lenders
- Grow the Home as a Strategy
- Deed Restrict Cap Resale Values
 - <80% AMI in Perpetuity
 - Affordability Increases Over Time
 - Supports future Generations of Ownership



Incentives and Tax Credits

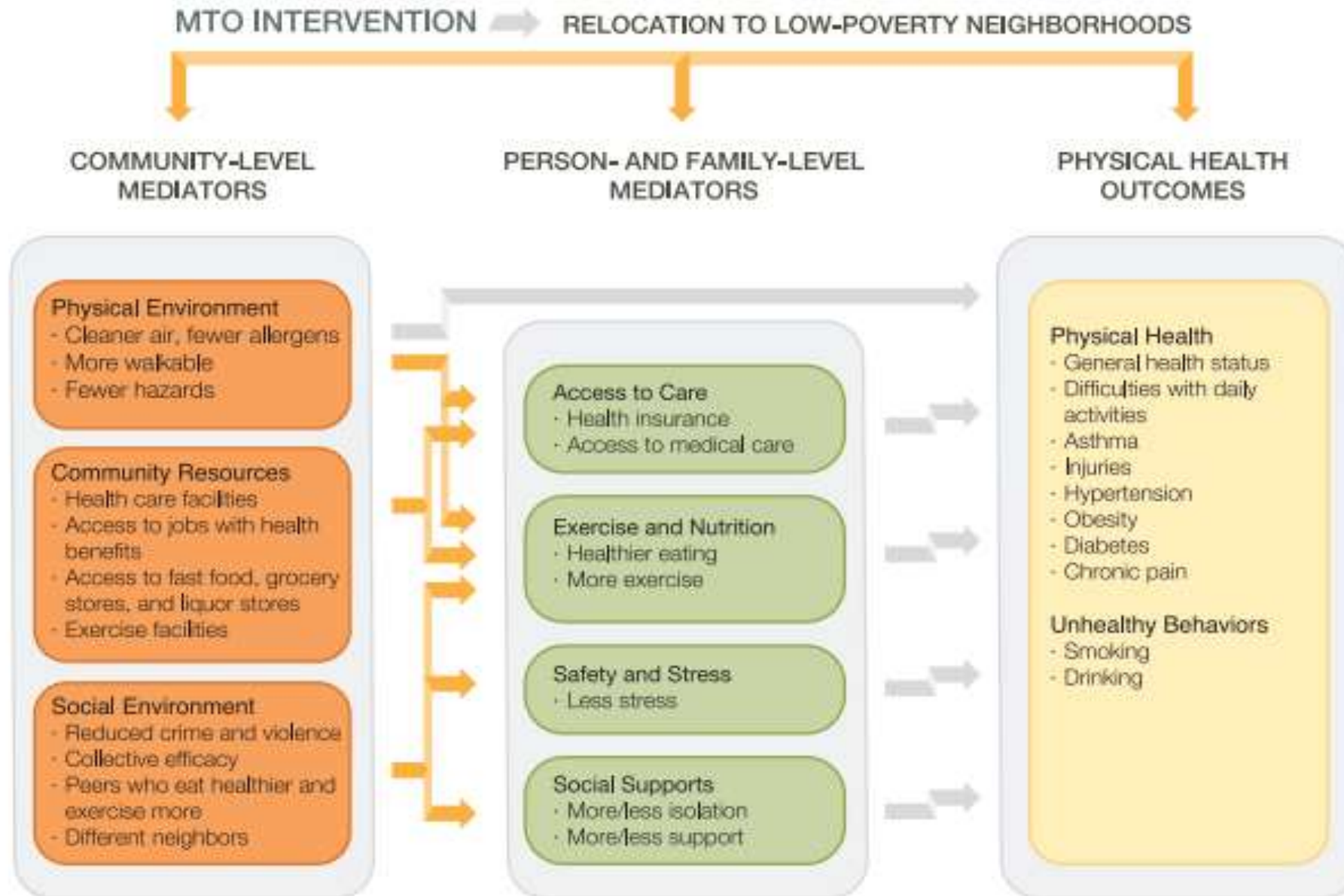


©Phius



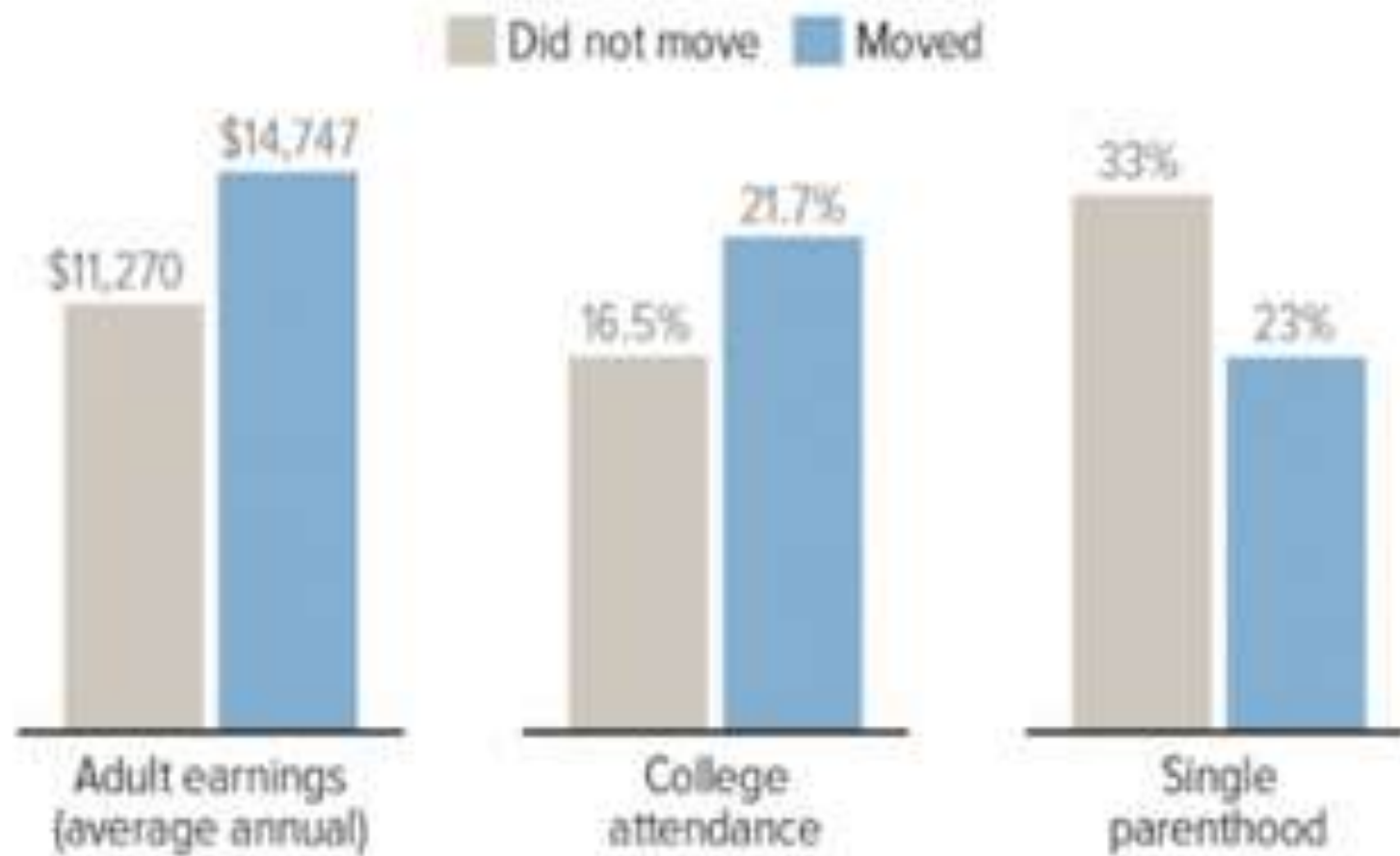
- Who Do We Build For
- What Do We Build
- Where Do We Build

Moving to Opportunity



[HUD MTO Study](#)

Moving with voucher to Lower-Poverty Neighborhoods



Build Opportunities



Image: Enterprise Builders



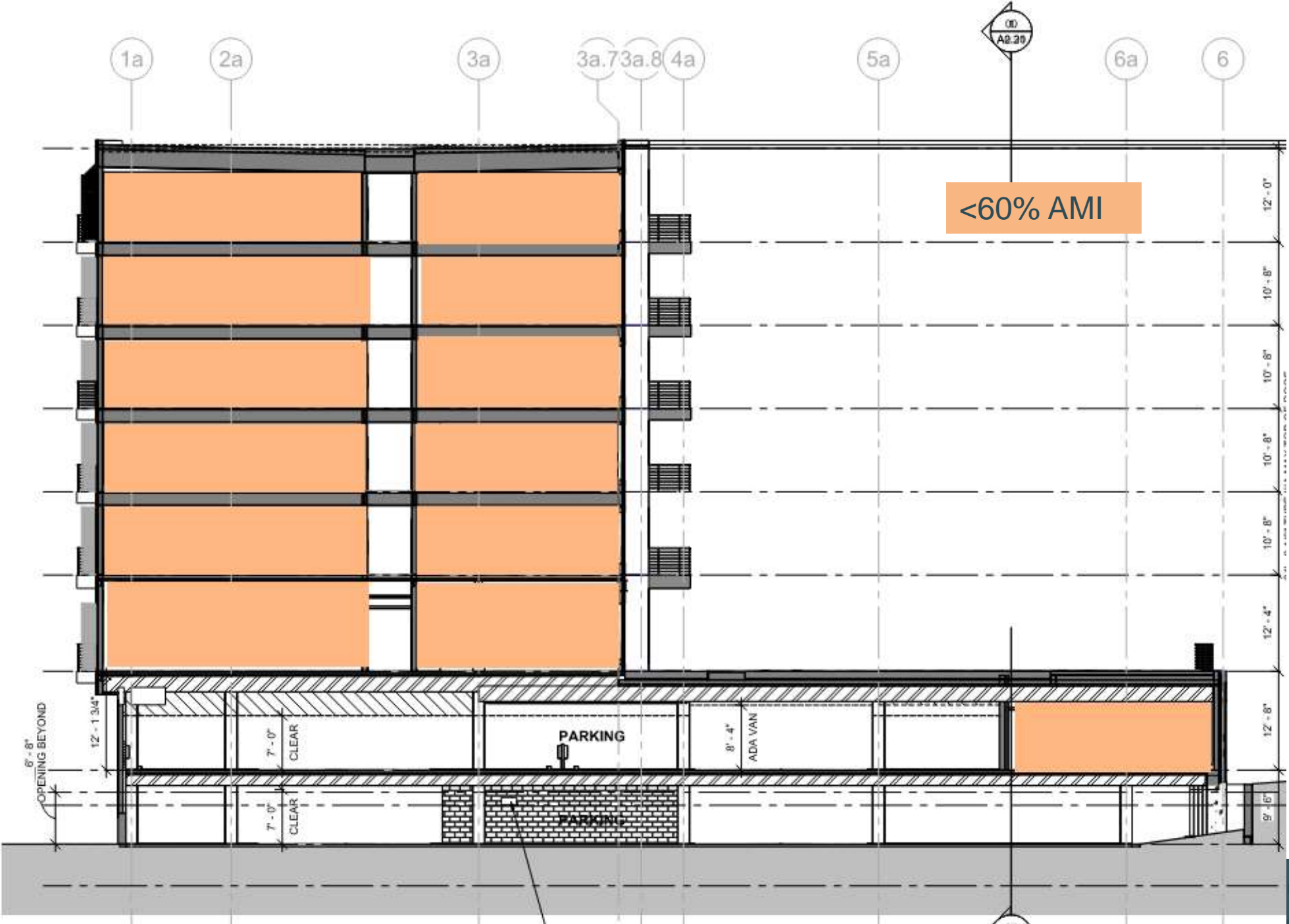
Image: Heritage Housing

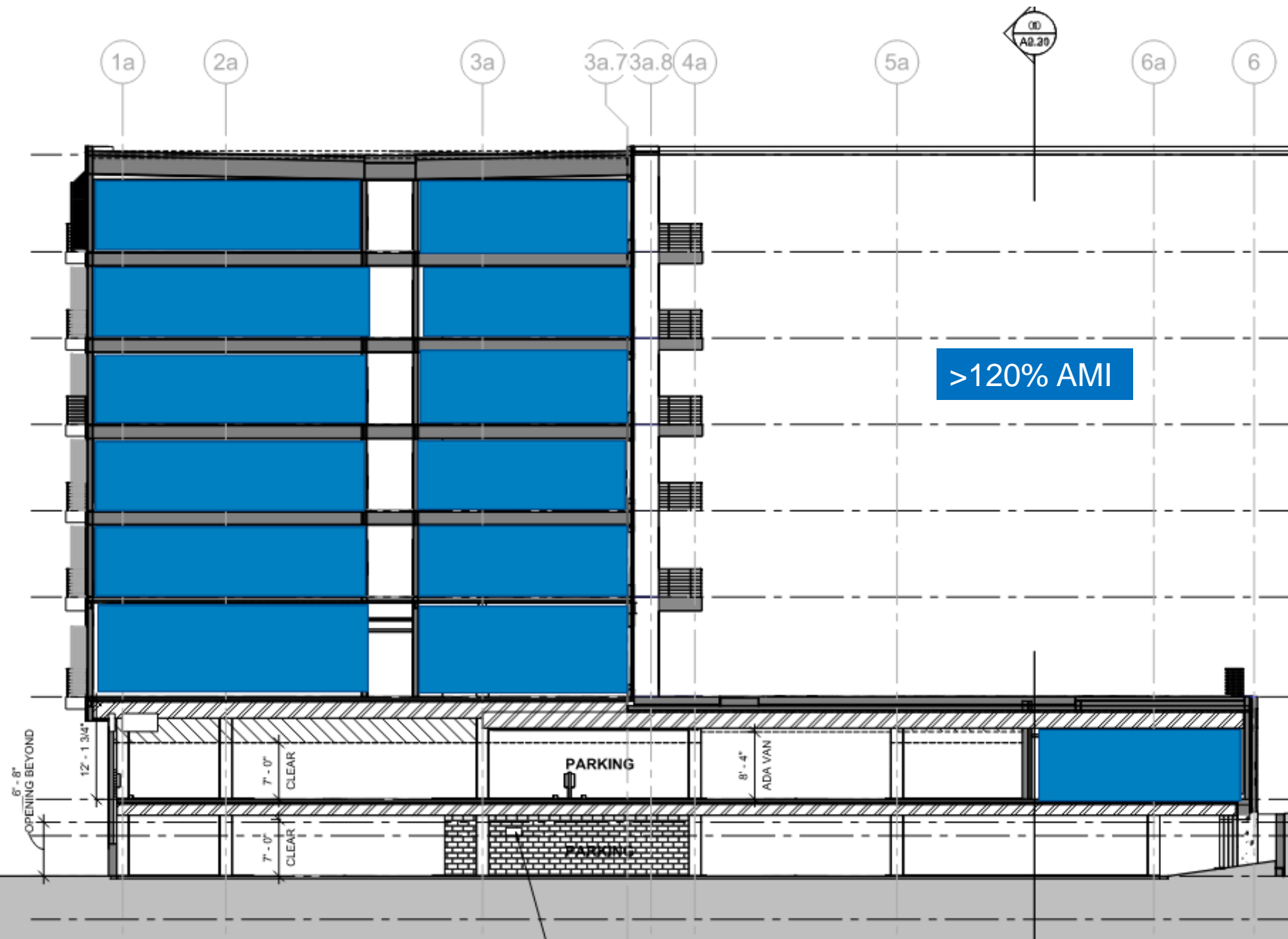
Eagleville Green

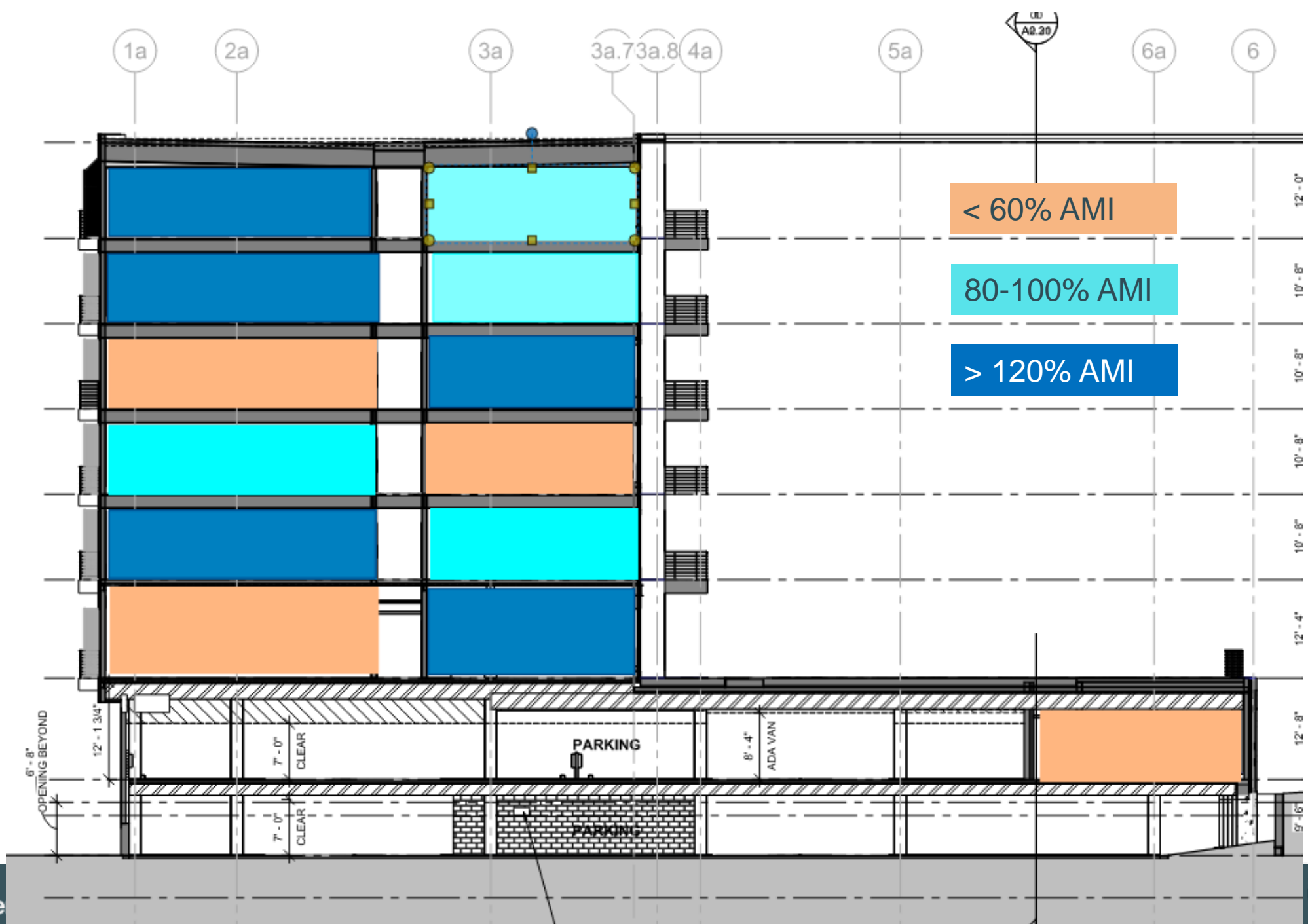


Canaan Parish









Fairview Terrace



- 4 STORIES
- 76 RESIDENTIAL UNITS
(62) 1-BED, (13) STUDIOS, (1) 2-BED
- 62,568 SF
- STAND OFFICE SPACE



- Who Do We Build For
- What Do We Build
- Where Do We Build
- How Do We Build

Case Study

Eagleville Green
Mansfield, CT

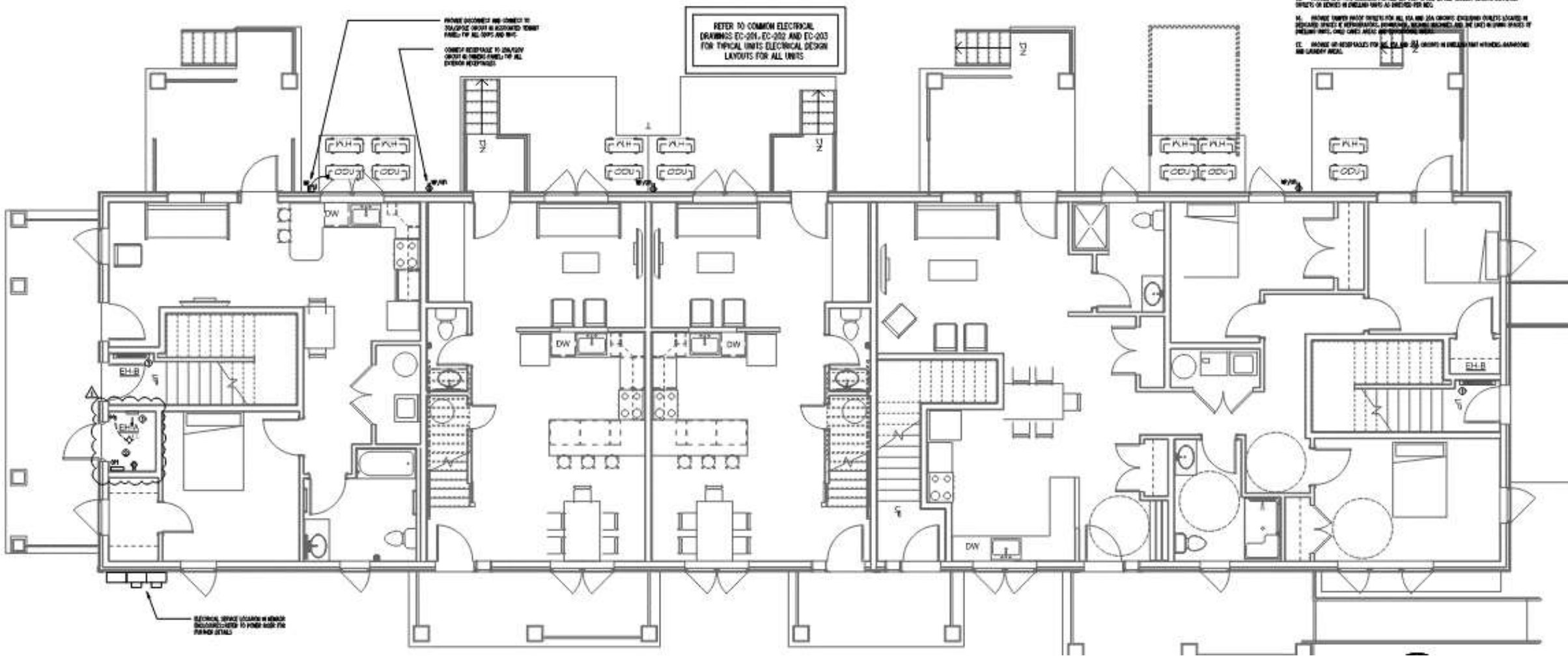
7 buildings
42 affordable units



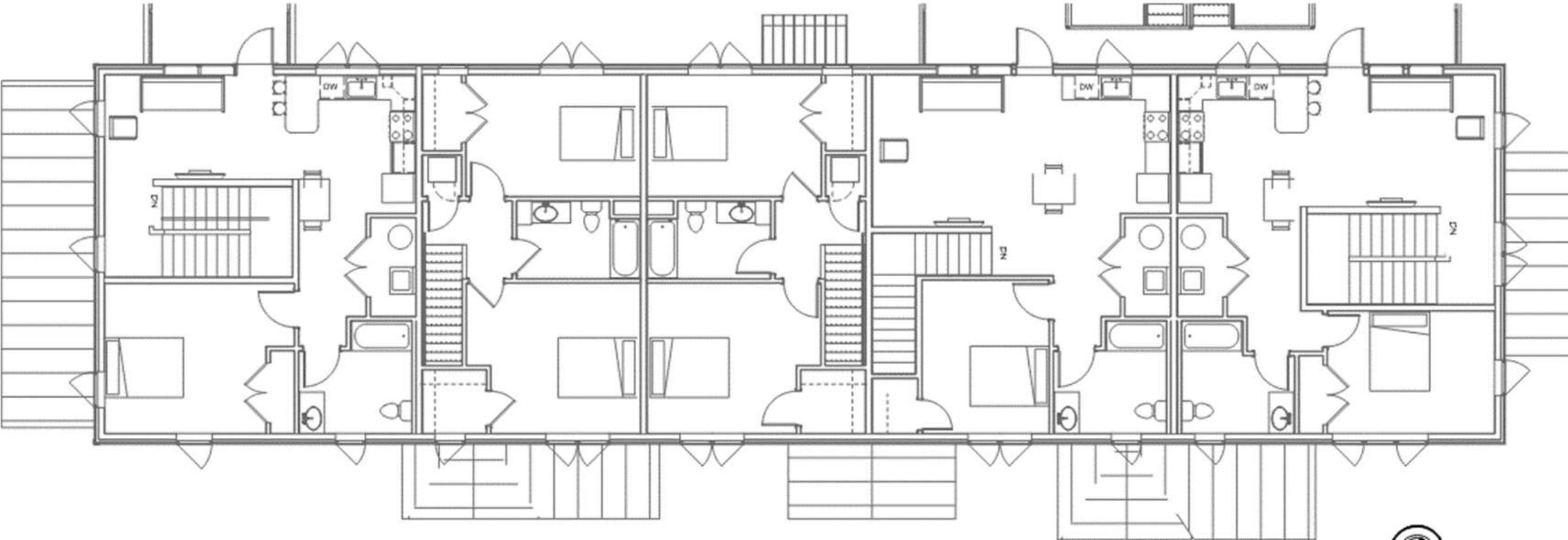
Eagleville Green



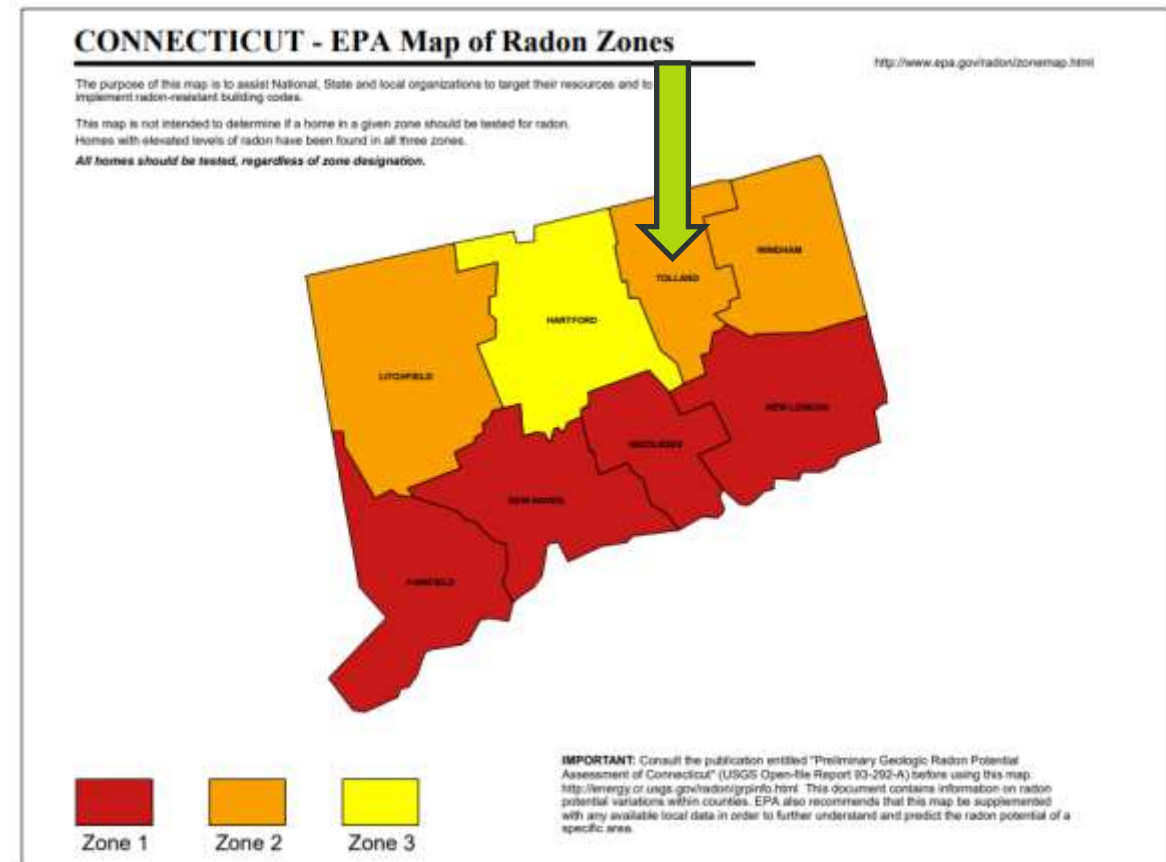
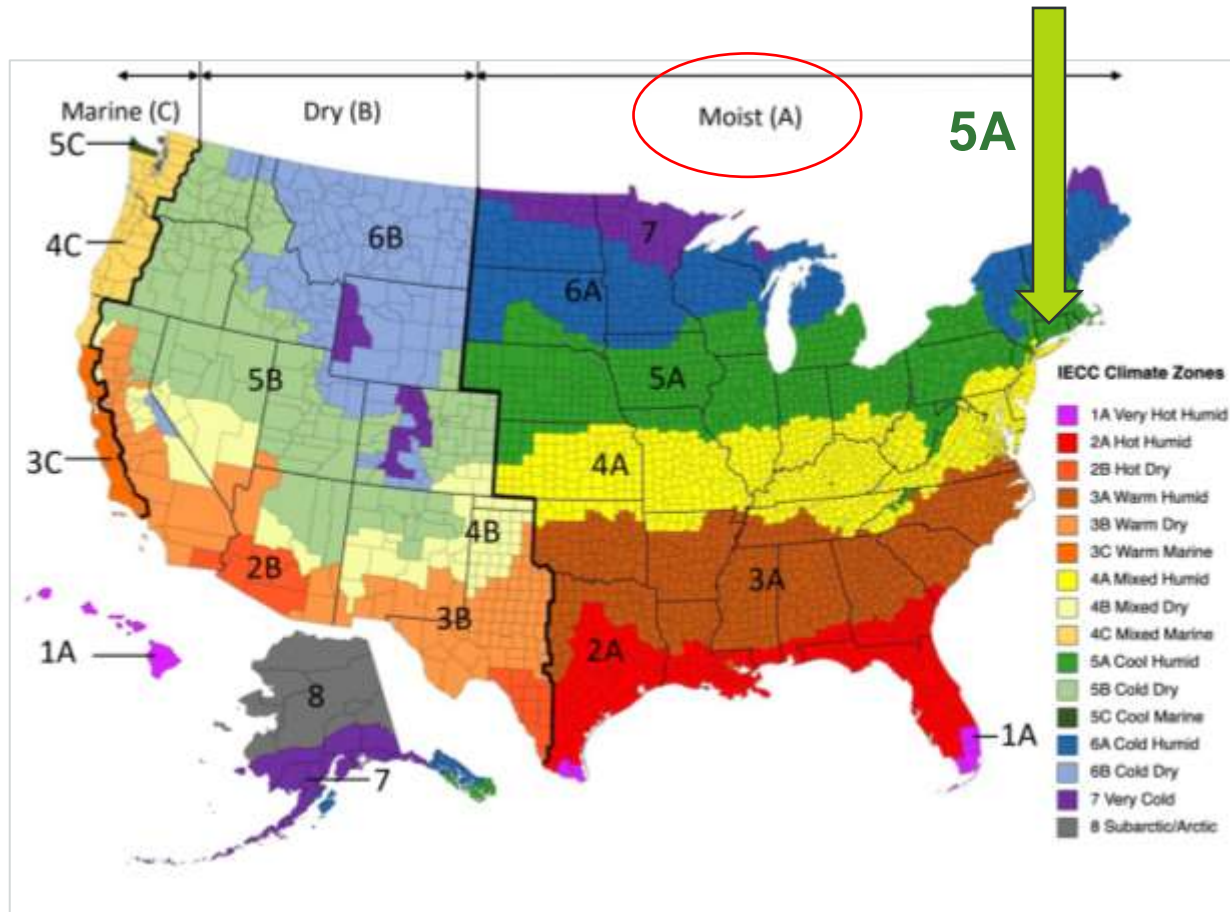
Eagleville Green



Eagleville Green



Location Specific Strategies



Radon Zone

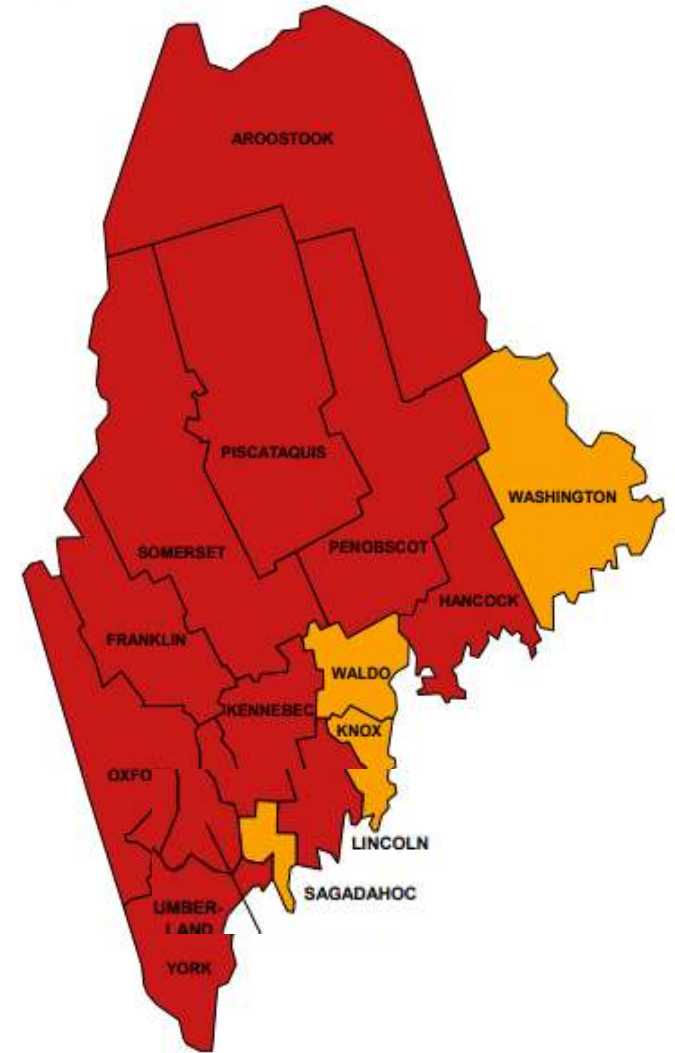
MAINE - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

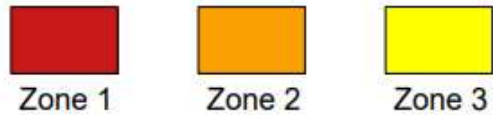
The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

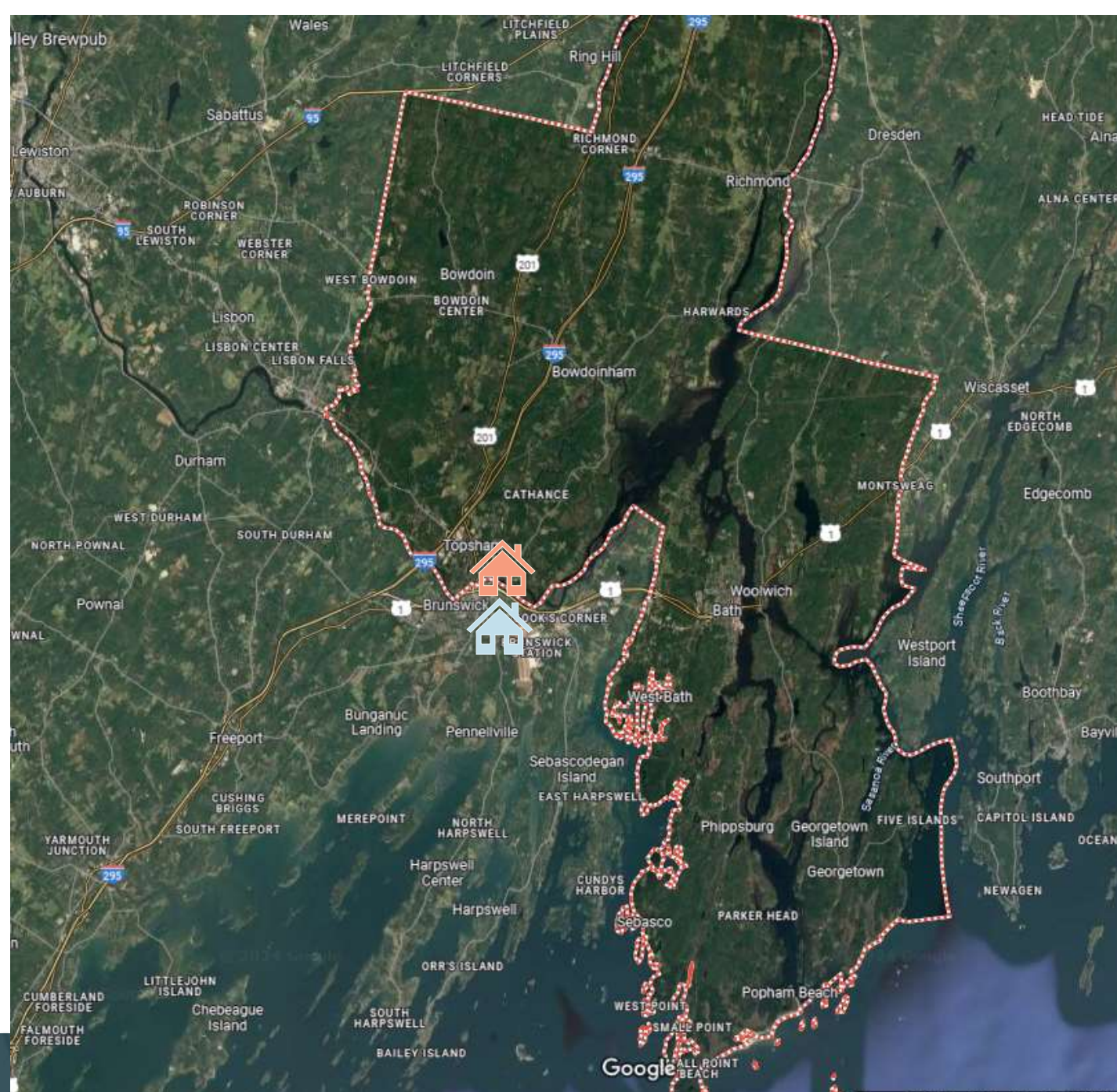
All homes should be tested, regardless of zone designation.



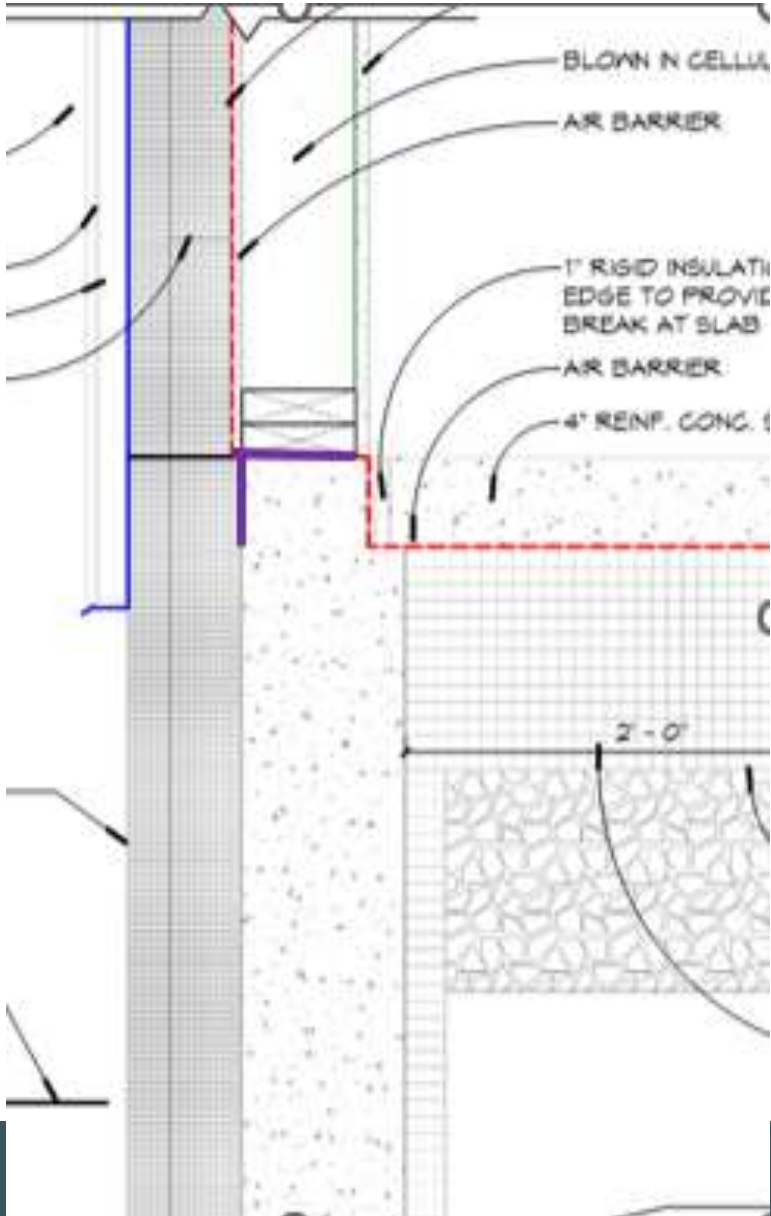
IMPORTANT: Consult the publication entitled "Preliminary Geologic Radon Potential of Maine" (USGS Open-file Report 93-292-A) before using this map.
<http://energy.cr.usgs.gov/radon/grpinfo.html> This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.



Radon Zone



Below Grade



Below Grade



Below to Above Grade



Above Grade

Mockup	Target CFM	Test (depressure)	Test (pressure)	Average CFM	Results
Test 1	1.32	4.37	4.39	4.38	Fail
Test 2	1.32	2.09	2.09	2.09	Fail

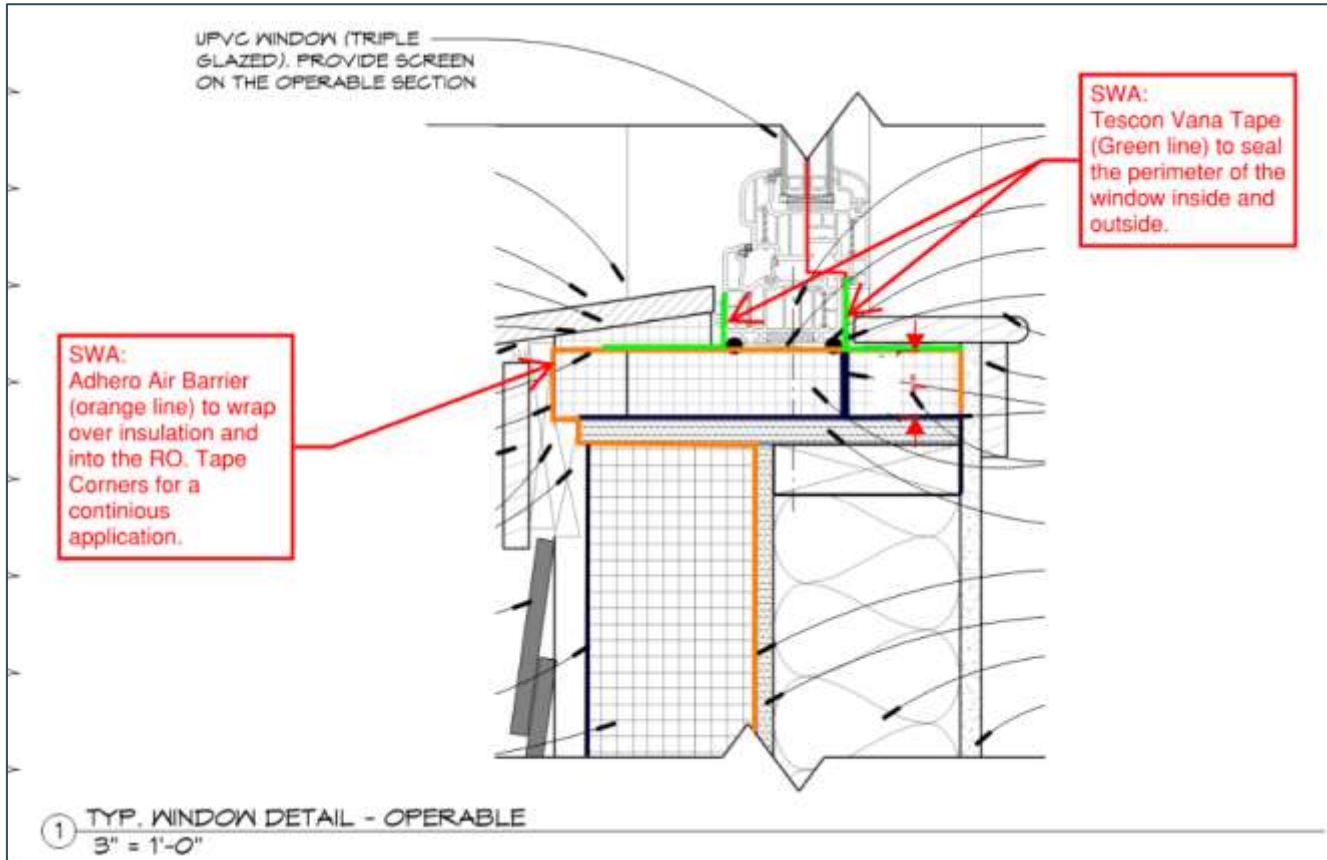


Above Grade

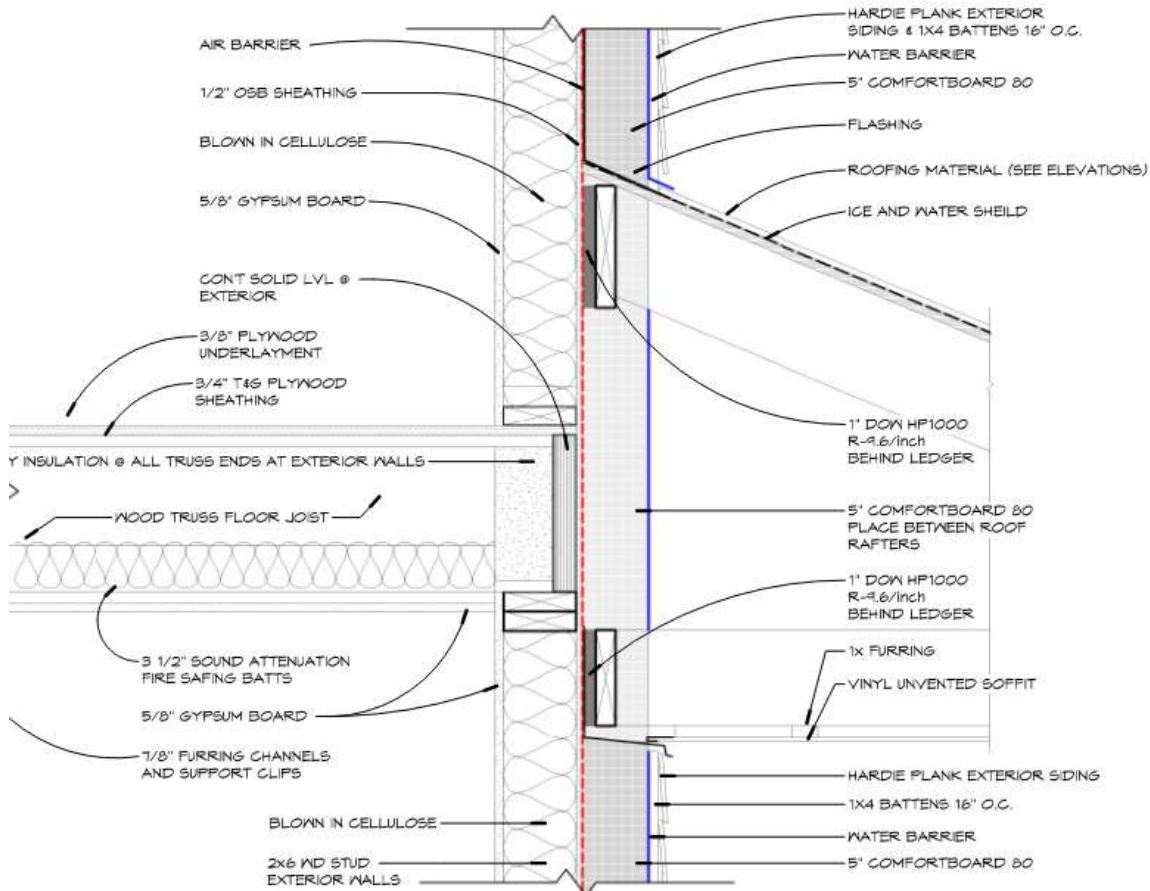


Above Grade

Mockup	Target CFM	Test (depressure)	Test (pressure)	Average CFM	Results
Test 1	1.64	1.47	1.66	1.565	Pass
Test 1 Weeps	1.64	1.64	1.64	1.64	Pass
Test 2	1.13	0.505	0.505	0.505	Pass



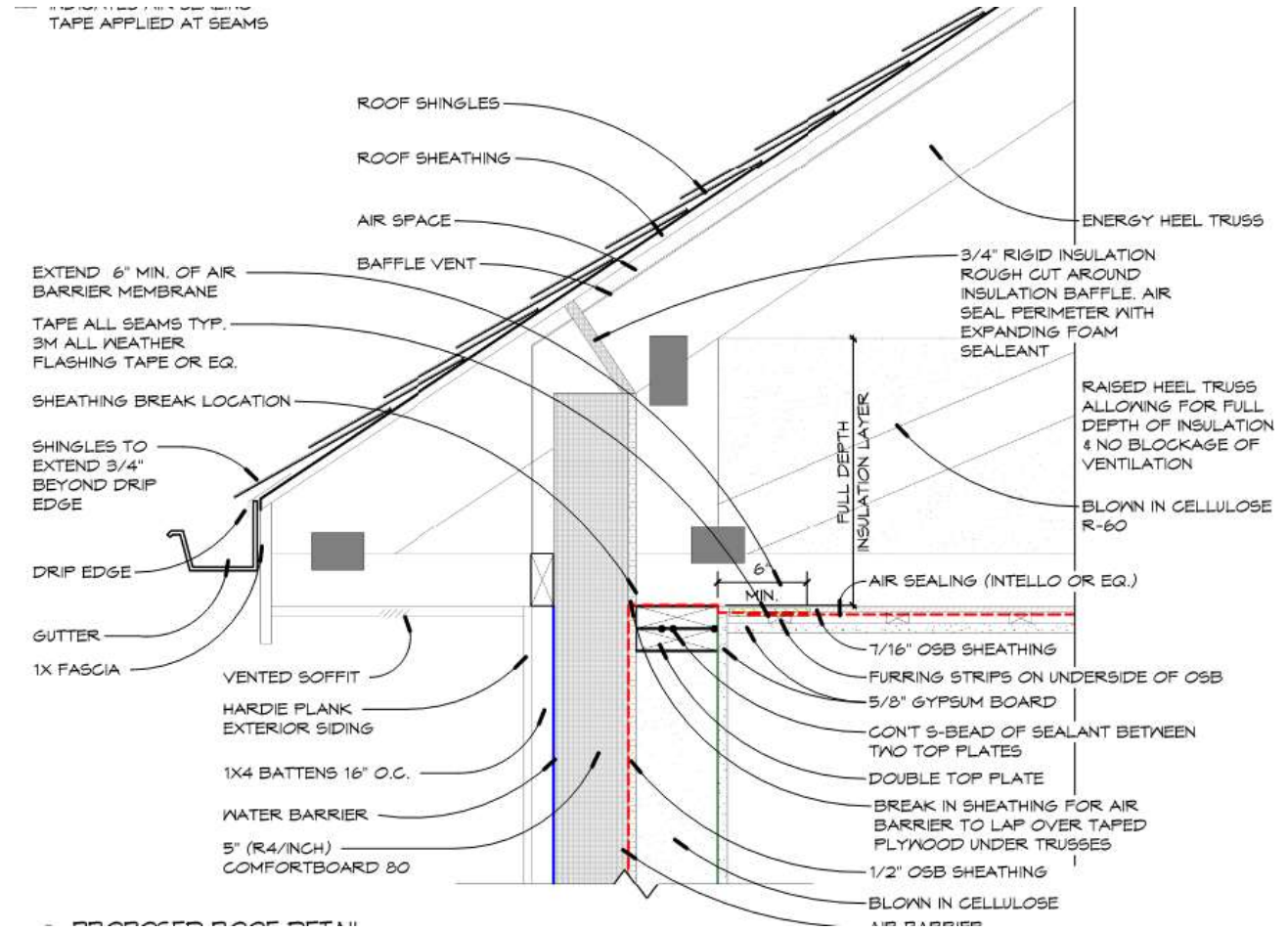
Above Grade



TYP. EXT. WALL UL DES. #U356 1 HOUR
 HARDIE BOARD SIDING & TRIM
 FURRING LAYER
 CONT. WATER BARRIER
 5" INSULATION LAYER **Gutex Multitherm**
~~(COMFORTBOARD 80 OR EQUAL)~~
 AIR BARRIER
~~1/2" O.S.B. STRUCTURAL SHEATHING~~ **Plywood**
 2X6 WOOD STUDS
~~BLOWN IN CELLULOSE~~ **Ecobatt (fiberglass insulation)**
 5/8" GYP. BD.



Walls to Attic



Attic



Design Considerations



Locate media boxes on interior (not common) walls



No pipes in exterior walls



Limit attic penetrations

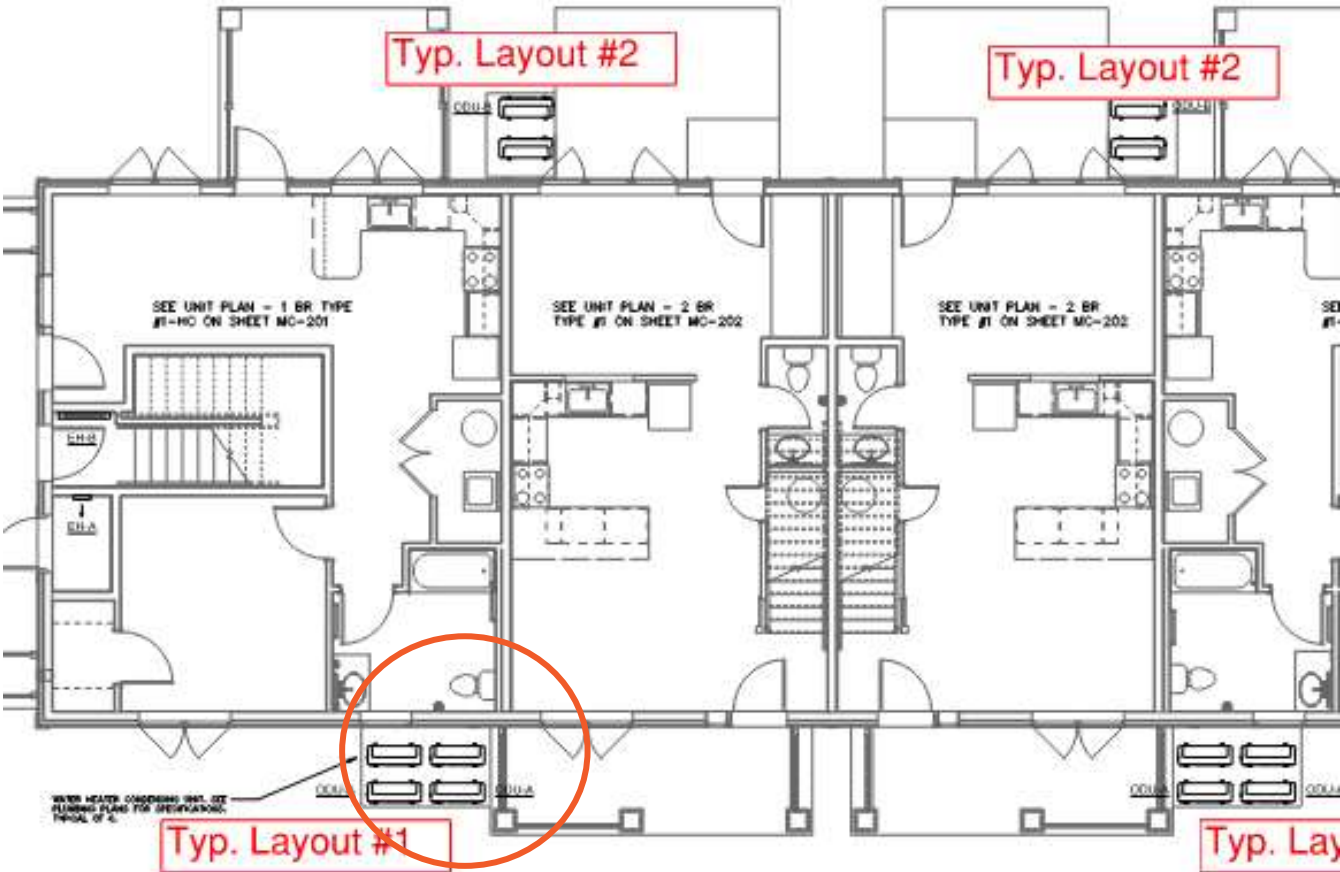
Ventilation & Filtration



Ventilation & Filtration



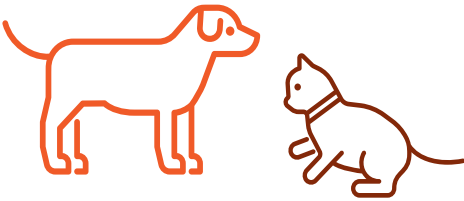
Heating and Cooling



Heating and Cooling



HAC Filtration



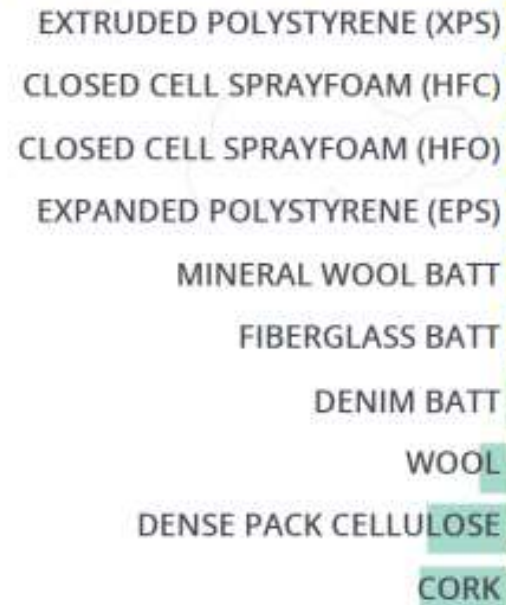
Materials and Finishes



CARBON IMPACTS OF INSULATION

kgCO₂ represents R-20 at 234 m²

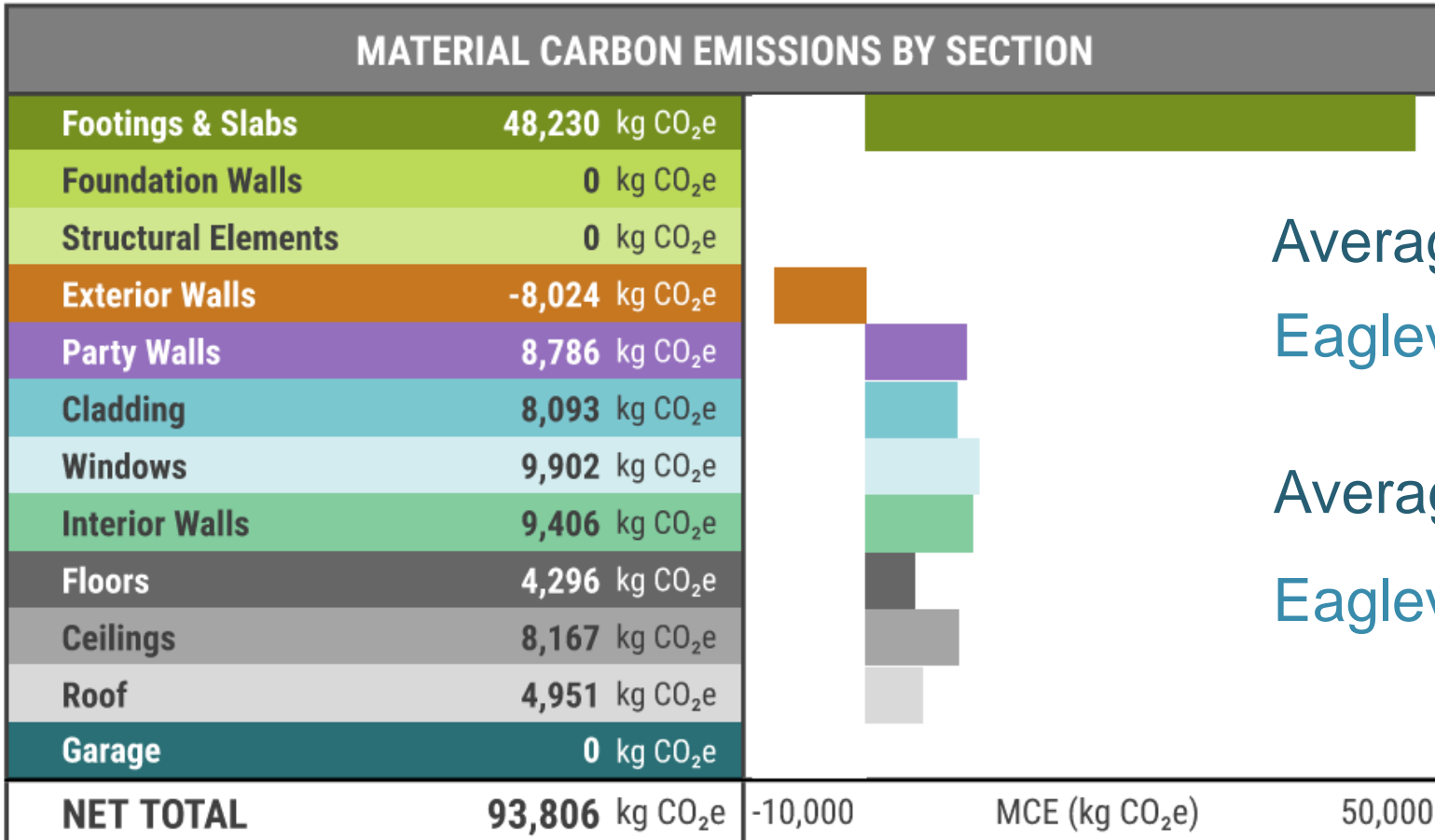
6,735 kgCO₂ emitted



Materials and Finishes



MATERIAL CARBON EMISSIONS BY SECTION



Average home is ~184 kg CO₂e/m²

Eagleville Green ~169 kg CO₂e/m²

Average home is 4 beds (5 ppl)

Eagleville is 8 beds (14 ppl)

Materials and Finishes



1	2	3	4	5	6
PFAS	Anti-microbials	Flame Retardants	Bisphenols + Phthalates	Some Solvents	Certain Metals
					

Materials and Finishes



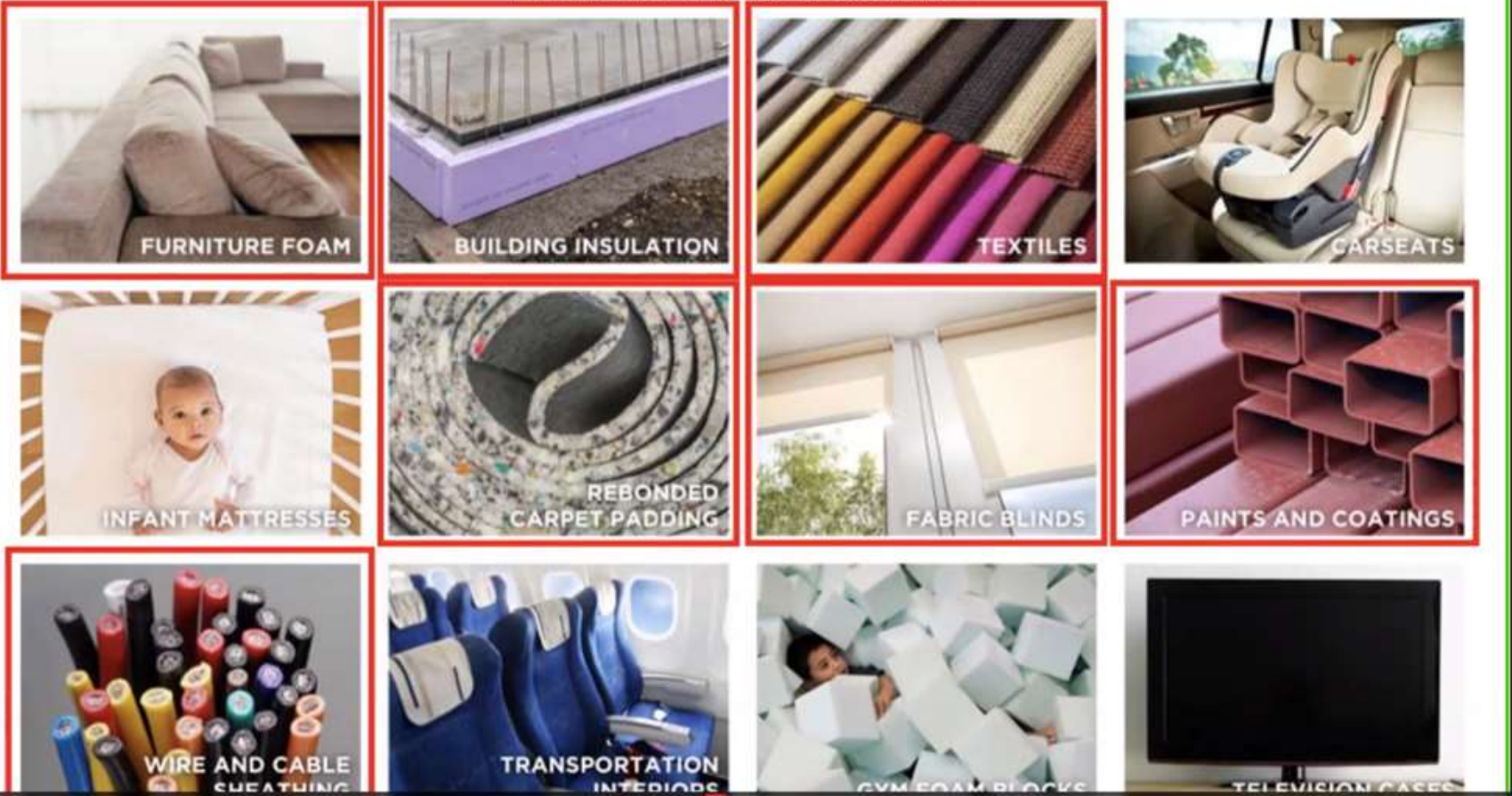
Antimicrobials



Materials and Finishes



Flame Retardants



Materials and Finishes



BPA



Materials and Finishes





- Who Do We Build For
- What Do We Build
- Where Do We Build
- How Do We **Design, Build, Operate, and Maintain**

Energy: Modeled vs. Actual Emissions



	211 W 29th		511 E 86th		Columbus Commons		Cornell Tech		Hotel Marcel	
	Site Energy Consumption kBtu/sf.yr									
	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual
Heating	0.42	3.75	0.81	1.36	0.6	1.1	1.06	5.2	5.55	7.2
Cooling	0.79	1.09	1.18	1.39	0.4	4.1	0.92	1.9	1.34	3.8
Domestic Hot Water	4.53	9.4	5.81	10.04	4.4	9.1	5.88	7.8	2.69	8.4
Lighting and Plug Loads	8.48	16.63	7.21	20.02	9.7	8.9	9.81	16.94	20.49	42.9
Total EUI	14.2	30.69	15.0	33.1	15.1	23.2	17.7	31.8	30.1	62.3

Energy: Modeled vs. Actual Emissions



Columbus Commons	
5 Stories over Amenity/Retail, 80 units, 110,600 GSF	
ASHP, NG Central DHW, ERV	
HERS Range	37 - 43
Carbon Index	48 - 53
Modeled Total Building EUI	15.0
Actual Total Building EUI*	18.0
* July 2023 - June 2024	

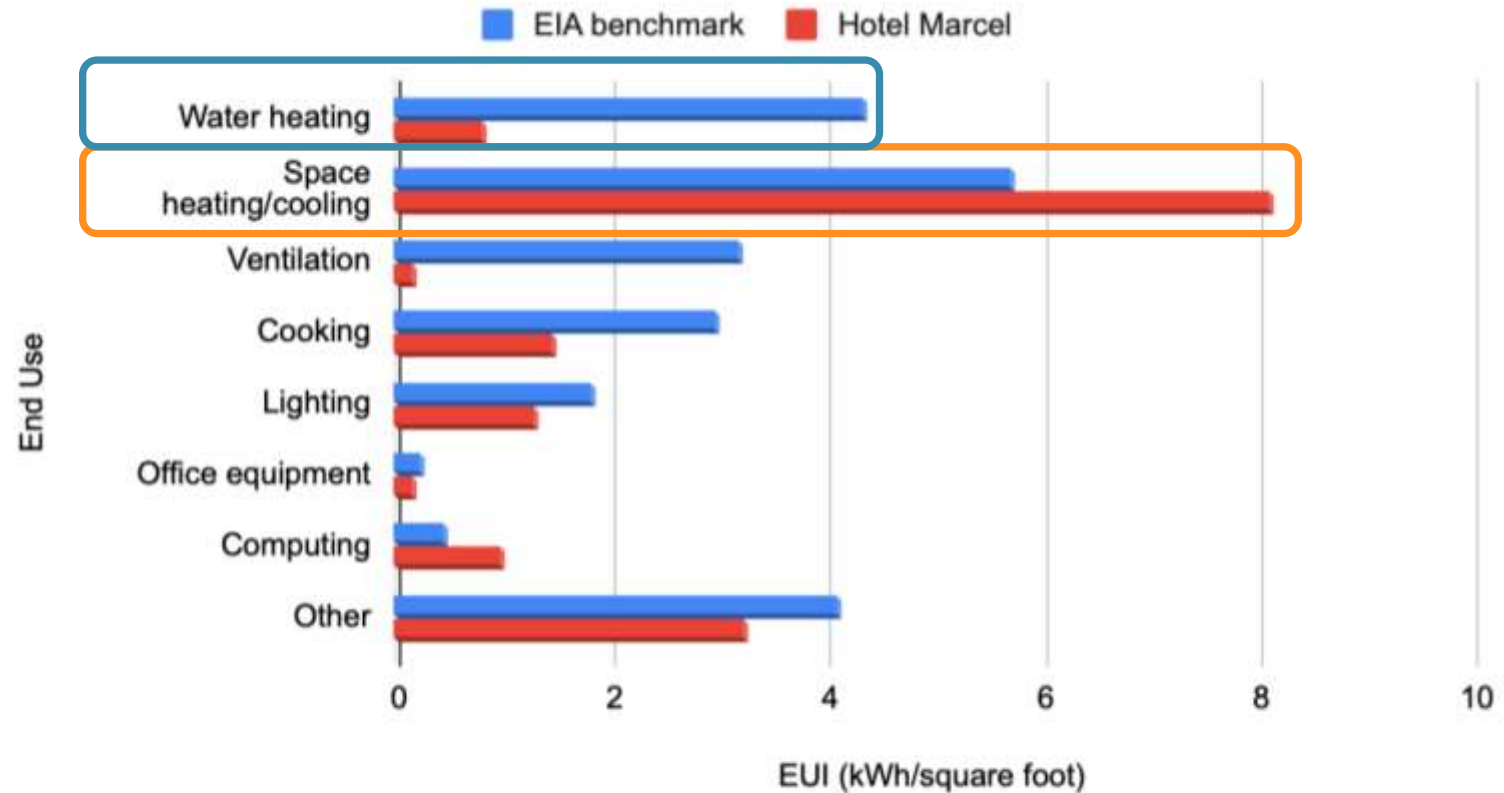
Hotel Marcel	
Renovated 165 Room Hotel, 111,000 GSF	
VRF, HPWH, ERV	
Modeled EUI	30.1
First Year, Actual EUI	62.3
Second Year, Actual EUI*	42.0
*After Final Cx, and HP Dryers replaced Electric Dryers	

Canaan Parish	
4 story MF, 40 units, 61,500 GSF	
ASHP, NG Tankless, Exhaust Only	
HERS Range	49 - 60
Carbon Index	70 - 89
Modeled EUI	35.0
Actual Total Building EUI*	45.0
* July 2023 - June 2024	

Energy: Modeled vs. Industry Benchmarks



EUI by End Use



Source: EIA Commercial Buildings Energy Survey 2022

Energy: Modeled vs. Actual Emissions



Energy: Modeled vs. Actual Emissions



Key to Solving the Housing Crisis



- Who Do We Build For
- What Do We Build
- Where Do We Build
- How Do We Build

Key to Solving the Housing Crisis



- Build for Everyone
- Build Diversified Housing
- Build for Opportunity
- Build for Health and Sustainability



Contact Us

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